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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,704	10/17/2003	Hisaki Kurashina	117086	8807

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EXAMINER	
NGUYEN, THANH NHAN P	
ART UNIT	**PAPER NUMBER**
2871	

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/686,704	KURASHINA ET AL.	
	Examiner	Art Unit	
	(Nancy) Thanh-Nhan P. Nguyen	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 15-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 15-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/28/05;9/19/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This communication is responsive to Amendment dated 10/21/2005.

Claim 17 is newly added. Claims 1-13 & 15-17 are pending for the examination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3, 6-11, and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (U.S. 2002/0018278) in view of Yang (U.S. 5,429,962).

Regarding claims 1, 9, 10 & 17, Sato discloses an electro-optical device comprising, above a substrate (10): a data line (6a') extending in a first direction; a scanning line (3a) extending in a second direction and intersecting the data line; a pixel electrode (9a) and switching element (30) disposed so as to correspond to an intersection region of the data line and the scanning line; a storage capacitor (70') electrically connected to the thin film transistor and the pixel electrode; a light shielding layer (300') disposed between the data line and the pixel electrode; an interlayer insulating film (43) disposed as the base of the pixel electrode; and a contact hole (85) formed in the interlayer insulating film, to electrically connect the switching element to the pixel electrode; the entire region inside the contact holes being filled with a filler (16); and a relay layer (71a') formed below the interlayer insulating film and electrically connecting the pixel electrode to the switching element,[figs. 1, 3, 17].

Sato lacks discloses the relay layer having a two-layered structure including two metal layers; wherein one of the metal layers of the relay layer being formed from a light-absorbing material and the other of the metal layers being formed from a light-reflecting material; and further lacks discloses the data line being formed of the same film as one of a pair of electrodes constituting the storage capacitor; wherein the data line being a laminated structure of an aluminum film and a conductive polysilicon film.

It was well know to have a layer (relay layer/data layer) formed of a two-layered structure including two metal layers as for preventing breakage of the layer as evidenced by Yang [col. 3, lines 66-68; col. 4, lines 1-16 & lines 37-42]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have the relay layer or/and the data line formed of a two-layered structure including two metal layers as for preventing breakage of the layer. Further, the data line being formed of the same film as one of a pair of electrodes constituting the storage capacitor achieves advantages such as cost reduction, product yield, as a common goal in the art, and the relay layer being formed from a light-absorbing material and the other of the metal layers being formed from a light-reflecting material as two-layered structure data line material would have been achieved the same advantages.

Regarding claim 3, Sato discloses another contact hole (83) being formed in another interlayer insulating film (41, 42), and the entire region inside the other contact hole being filled with the filler, [fig. 17].

Regarding claim 6, Sato discloses a coating member (ITO material) being formed on the inner surface of the contact hole (85), and the filler (16) being formed on

the coating member, [figs. 3, 17; and considered ITO material of pixel electrode 9a as a coating member].

Regarding claim 7, Sato discloses the filler (16) being made of a polyimide material, [fig. 17; par. 0106].

Regarding claim 8, Sato discloses the contact hole being formed in light-shielding regions corresponding to a position in which the scanning line and the data line is formed, [fig. 17].

Regarding claim 11, Sato discloses a relay layer (71a') being electrically connected between one of the pair of electrodes constituting the storage capacitor and the pixel electrode, [fig. 17].

Claim 15 is met the discussion regarding claim 1 rejection above.

Claim 16 is met the discussion regarding claim 1 rejection above, and also see fig. 18.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato in view of Yang as discussed above, and further in view of Zhang et al (U.S. 6,396,470).

Regarding claim 2, Sato lacks disclosure of the surface of the interlayer insulating film being planarized. However, it was well known to have the surface of the interlayer insulating film being planarized for the benefit of flattening or leveling the substrate, as evidenced by Zhang et al, [fig. 16]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have the

surface of the interlayer insulating film being planarized for the benefit of flattening or leveling the substrate.

Claims 4, 5 , 12 & 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato in view of Yang as discussed above, and further in view of Matsushima (U.S. 6,806,932) and Zhang et al (U.S. 6,396,470).

Regarding claims 4 & 5, Sato et al lacks disclosure of the filler being made of a light-shielding material, or a transparent conductive material.

It was well known that filling the contact hole(s) with a conductive member so as to electrically connect predetermined ones of the electrodes each other via the conductive member, and also, by filing the contact hole(s), the orientation of the liquid crystal molecules will not disturbed at an area corresponding to contact hole(s). And it was evidenced by Matsushima, the filler (26) being made of a light-shielding material (Ti), [see fig. 2]; it was also evidenced by Zhang et al, the filler being made of a transparent conductive material (ITO), [see fig. 16]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have contact hole(s) being filler with a light-shielding material, or with a transparent conductive material for the benefit of having electrically connect predetermined ones of the electrodes each other via the conductive member, and not having the orientation of the liquid crystal molecules disturbed.

Regarding claim 12, Sato et al discloses the data lines including main line portions which extend above the scanning lines so as to intersect the scanning lines; a counter electrode (21) facing the plurality of pixel electrodes (9a) being formed on a

counter substrate (20) disposed to face the substrate; convex portions being formed in regions which are to be gaps between the pixel electrodes, [fig. 17].

Even though Sato lacks disclosure of the overhang portions, which overhang from the main line portion along the scanning line, wherein the overhang portions including a shielding layer, it would have been obvious to one ordinary skill in the art to have the overhang portions including a shielding layer for blocking the light that might reflect from the scanning line, and therefore preventing the deterioration of the image display. Therefore, at the time the invention was made, it would have been obvious to one ordinary skill in the art to have the overhang portions along the scanning line including a shielding layer for blocking the light that might reflect from the scanning line, and therefore preventing the deterioration of the image display.

Sato further lacks disclosure of a first pixel electrode group inversely driven in a first period and a second pixel electrode group inversely driven in a second period complementary to the first period. However, it was an intended use limitation and therefore does not patentably distinguish the invention.

Regarding claim 13, since claim 13 is a product-by-process claim, determination of patentability is based on the product itself; the patentability of the product does not depend on its method of production, [MPEP 2113]. For the examination purpose, this claim will be examined as the product itself, and therefore, claim 13 is met the discussion regarding claim 12 rejection above.

Response to Arguments

Applicant's arguments with respect to claims 1-13 & 15-17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to (Nancy) Thanh-Nhan P. Nguyen whose telephone number is 571-272-1673. The examiner can normally be reached on M-F/9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

(Nancy) Thanh-Nhan P Nguyen
Examiner
Art Unit 2871
-- January 6, 2006 --

TN

ANDREW SCHECHTER
PRIMARY EXAMINER